NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

Harold Runnels Building
1190 St. Francis Drive, P.O. Box 5469
Santa Fe, NM 87502-5469
Phone (505) 827-2900 Fax (505) 827-2965
www.nmenv.state.nm.us

BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

RON CURRY
Secretary
SARAH COTTRELL
Deputy Secretary

Memorandum

To: **LaDonna Turner, Site Assessment Manager**
Technical and Enforcement Branch
U.S. Environmental Protection Agency, Region 6

From: **Dana Bahar, Manager, Superfund Oversight Section**
Ground Water Quality Bureau, New Mexico Environment Department

Date: **October 8, 2010**

Subject: **Pre-CERCLIS Screening Assessment of the Section 10 Mine (Grants Mining District), McKinley County, New Mexico: Further action under CERCLA recommended**

Site name Section 10 **Alternative names** Kermac, Regomex, Ambromex, Buffalo
Street address not applicable **City** not applicable **State** New Mexico
Zip code not applicable **County** McKinley
Latitude 35.45505 **Longitude** 107.86614 **TRS** T14N, R10W, Sec 10, SE, NE, NE

Site physical description:
The Section 10 Mine ("Site") is located approximately 9.2 miles northwest of the junction of State highways 509 and 605 (Ref. 1). The Site is located in the Goat Mountain 7.5 minute USGS 1:24000 scale topographic map quadrangle at latitude 35.45505, longitude 107.86614 and elevation approximately 7,119 ft above sea level.

The total area of the Site that is disturbed is reported as 16.48 acres (Ref. 2). Access to the Site is required by permission from the private landowner of the property and the adjacent property owner whose gravel road is used to drive to the Site through a locked gate (Ref. 1). Figures 1-3 are contained in Attachment A.

The Section 10 Mine is located approximately 2,800 ft west of the Dysart Mine No. 1 site along the southern side of the ephemeral drainage named Martin Draw (Ref. 3). Martin Draw extends southeastward to join Arroyo del Puerto near the northwest end of the Rio Algom Mill Site. The Arroyo del Puerto continues southeastward until it joins San Mateo Creek below the Highway 509-605 junction.

The mine is a vertical shaft with underground workings at approximately 400-700 ft since other mines in the local area are generally completed at these depths or have underground workings in this range of depth. The mine started in 1959 and produced through 1965. Features noted at the Site included a mine dump, a metal shed, a head frame, and a ventilation shaft (Ref. 4). By 1980 shaft was secured with wire mesh fence (Ref. 2).

Site identification:
The Site is one of numerous legacy uranium sites within the Grants Mining District, Ambrosia Lake Subdistrict, San Mateo Creek watershed, Bluewater Underground Basin.

Site summary:
Anderson visited the Site in 1980 and recorded the following radiological readings of the Site main features. The main: shaft measured 400 cps (24,000 cpm or 137 µR/hr) with a high of 900 cps (54,000 cpm or 309 µR/hr). The main rock waste dump measured 400-700 cps. The ventilation shaft air measured greater than 6,000 cps (360,000 cpm or 2,057 µR/hr).

The target rock was the Westwater Canyon Member of the Jurassic Morrison Formation. Geologically the mines in this part of Ambrosia Lake are located within the Ambrosia Lake ore trend (northern trend) and in the vicinity of the Ambrosia Dome (Ref. 5). Ore deposits and mines in this area are located above the regional water table elevation and are “dry” mines.

Targets:
The Site is located within a few hundred feet of a small unnamed drainage that flows NW-SE to join with Martin Draw in a distance of approximately 2,150 ft. Martin Draw eventually joins the Arroyo del Puerto. The Arroyo del Puerto eventually joins the San Mateo Creek drainage. Some portion of contaminants from the Site may adhere to sediments, and propagate episodically downgradient in response to stream flows within Martin Draw, Arroyo del Puerto, and San Mateo Creek. Current details of alluvial ground water flow are unknown, but are thought to follow general topographic slope. Alluvial groundwater adjacent to and downgradient from the Site may propagate into underlying bedrock aquifers through stratigraphic, structural, and/or anthropogenic connections (e.g., leaky wells, mine shafts). Distance to the Site from the end of Highway 509 is approximately 2.5 miles.

Wells in Table 1 below are registered with the New Mexico Office of the State Engineer and located within a 4-mile radius of this mine (Ref. 6).

Table 1. Well records from the New Mexico Office of the State Engineer located within a 0 – 4 mile distance ring from the Section 10 Mine Site, Grants Mining District, New Mexico.

distance from site (miles)	POD REC NBR	POD BASIN	COUNTY	Distance from site miles	POD NBR	well completion date	DEPTH WELL (ft)	DEPTH WATER (ft)	CASING SIZE (in)	owner name	USE	Diversion ac/ft yr
0 - 0.25				0 - 0.25								
0.25 - 0.50				0.25 - 0.50								
0.50 - 0.75				0.50 - 0.75								
0.75 - 1.0				0.75 - 1.0								
1.0 - 2.0	29	B	McKinley	1.0 - 2.0	363	4/30/1956	745.00	0.00	4.50	RIO ALGOM MINING LLC	Mining	0
1.0 - 2.0	1490	B	McKinley	1.0 - 2.0	372	9/12/1956	796.00	0.00	8.63	SABRE-PINON CORPORATION	Mining	0
1.0 - 2.0	354	B	McKinley	1.0 - 2.0	373	12/31/1956	1003.00	0.00	13.38	RIO ALGOM MINING LLC	Mining	0
1.0 - 2.0	1225	B	McKinley	1.0 - 2.0	374	1/2/1958	827.00	0.00	0.00	RIO ALGOM MINING LLC	Mining	5227
2.0 - 3.0	522	B	Valencia	2.0 - 3.0	375	7/18/1960	90.00	60.00	0.00	ANDREWS	Domestic	3
2.0 - 3.0	620	B	McKinley	2.0 - 3.0	376	11/30/1956	3093.00	0.00	10.75	RIO ALGOM MINING LLC	Mining	0
2.0 - 3.0	785	B	McKinley	2.0 - 3.0	377	12/31/1955	760.00	0.00	4.50	RIO ALGOM MINING LLC	Mining	0
2.0 - 3.0	183001	B	McKinley	2.0 - 3.0	378	8/25/1956	752.00	0.00	8.63	SABRE-PINON CORPORATION	Mining	0
2.0 - 3.0	532	B	McKinley	2.0 - 3.0	379	9/18/1958	857.00	0.00	0.00	RIO ALGOM MINING LLC	Mining	5227
2.0 - 3.0	1167	B	McKinley	2.0 - 3.0	380	5/25/1985	651.00	566.00	5.00	ALBERS BROTHERS	Stock	3
2.0 - 3.0	436	B	McKinley	3.0 - 4.0	381	4/29/1992	1200.00	700.00	6.63	ELKINS	Stock	3
3.0 - 4.0	97	B	McKinley	3.0 - 4.0	382	8/31/1956	735.00	0.00	6.00	ANDERSON DEVELOPMENT CORP.	Mining	0
3.0 - 4.0	851	B	McKinley	3.0 - 4.0	383	1/31/1956	793.00	0.00	6.63	ANDERSON DEVELOPMENT CORP.	Mining	0
3.0 - 4.0	1285	B	McKinley	3.0 - 4.0	384	2/7/1978	70.00	0.00	0.00	UNITED NUCLEAR-HOMESTAKE PTNRS	Monitoring well	0
3.0 - 4.0	180648	B	McKinley	3.0 - 4.0	385	2/7/1978	70.00	0.00	5.00	UNITED NUCLEAR-HOMESTAKE PTNRS	Monitoring well	0
3.0 - 4.0	378	B	McKinley	3.0 - 4.0	386	3/23/1968	810.00	0.00	0.00	RIO ALGOM MINING LLC	Mining	5227
3.0 - 4.0	1170	B	McKinley	3.0 - 4.0	387	6/8/1958	750.00	0.00	0.00	RIO ALGOM MINING LLC	Mining	5227
3.0 - 4.0	823	B	McKinley	3.0 - 4.0	388	3/16/1970	779.00	0.00	0.00	RIO ALGOM MINING LLC	Mining	5227
3.0 - 4.0	1428	B	McKinley	3.0 - 4.0	389	4/5/1959	1094.00	0.00	0.00	RIO ALGOM MINING LLC	Mining	5227
3.0 - 4.0	194382	B	McKinley	3.0 - 4.0	390	3/19/2004	800.00	660.00	5.00	GRIDER	Stock	3
	POD REC NBR: point of diversion record number.				B: Bluewater Basin							
	POD BASIN: point of diversion basin											
	POD NBR: point of diversion number											

Site ownership and Potential Responsible Parties:
In 1957 Patten & Galassini sunk the main shaft at the Site. From 1957-1969 Kermac Nuclear Fuels Corp. operated the Site. From 1959-1962 S & A Mining Co. operated the Site as a contractor to Kermac Nuclear Fuels. In 1964 Homestake-Sapin Partners took over operation of the Site. In 1979 July Cobb starts to re-enter the shaft. From 1980-81 Cobb Resources operated the Site but the production of ore was stockpiled only (Ref. 2 and 3).

Site ownership records indicate private surface and mineral rights. A search of records at the McKinley County Courthouse did not show a surface owner.

File review:
Files and information sources that were reviewed for this assessment are listed below.

Site reconnaissance: A site reconnaissance visit was not conducted as part of this screening assessment.

Recommendation:
Additional investigation of the Site under CERCLA authority is recommended to assess any physical hazards as well as the areal extent of elevated radioactivity readings noted in the most recent Site reconnaissance to determine if threats to human health and the environment exist. NMED also recommends assessment of sediments in surface water drainages originating or crossing this Site to evaluate the potential occurrence of impacts from dispersal of waste materials that have been left on-Site.

The Section 10 Mine is considered a “dry” mine because the depth of the ore that was mined is above the regional water table (Ref. 5). Currently, the existence of regional impacts from legacy uranium sites to the ground water system has not been determined. Ground water impacts from “dry” mines such as this Site initially would impact the alluvial ground water system through leaching of on-site waste materials and ore stockpiles. Such impacts, if they exist, predominantly may be localized to alluvial ground water in the vicinity of the Site from leaching prior to Site reclamation. Alternatively ground water impacts may be more widespread, contributing to the overall potential degradation of the alluvial ground water regionally, as well as potentially to impacts to ground water in underlying bedrock aquifers. A generalized investigation of potential alluvial ground water impacts from “dry” former uranium mines within the Grants Mining District is recommended as part of regional ground water quality characterization. Depending upon the results of this investigation, additional site-specific alluvial ground water characterization might be considered.

References:
1. USGS, 1957. Goat Mountain, N, Mex. 7.5 minute quadrangle topographic map, 1:24,000 scale.
2. New Mexico Energy, Mineral and Natural Resources Department, undated. “2007-07-20 to NMED-GWQ-Sfund.xls.” Spreadsheet excerpt.
3. McLemore, Virginia T. and William L. Chenoweth, revised December 1991. “Uranium mines and deposits in the Grants district, Cibola and McKinley counties, New Mexico.” New Mexico Bureau of Mines and Mineral Resources Open-file report 353.
4. Anderson, Orin J., 1980. “Abandoned or inactive uranium mines in New Mexico.” New Mexico Bureau of Mines and Mineral Resources Open-file report 148.
5. Zitting, R.T. et al., 1957. Geology of the Ambrosia Lake area uranium deposits, McKinley County, New Mexico, Mines Mag., v. 47, p.; 53-58.
6. New Mexico Office of the State Engineer. “May_06_wells.” Shapefile.
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Attachment A

Figures 1, 2, and 3

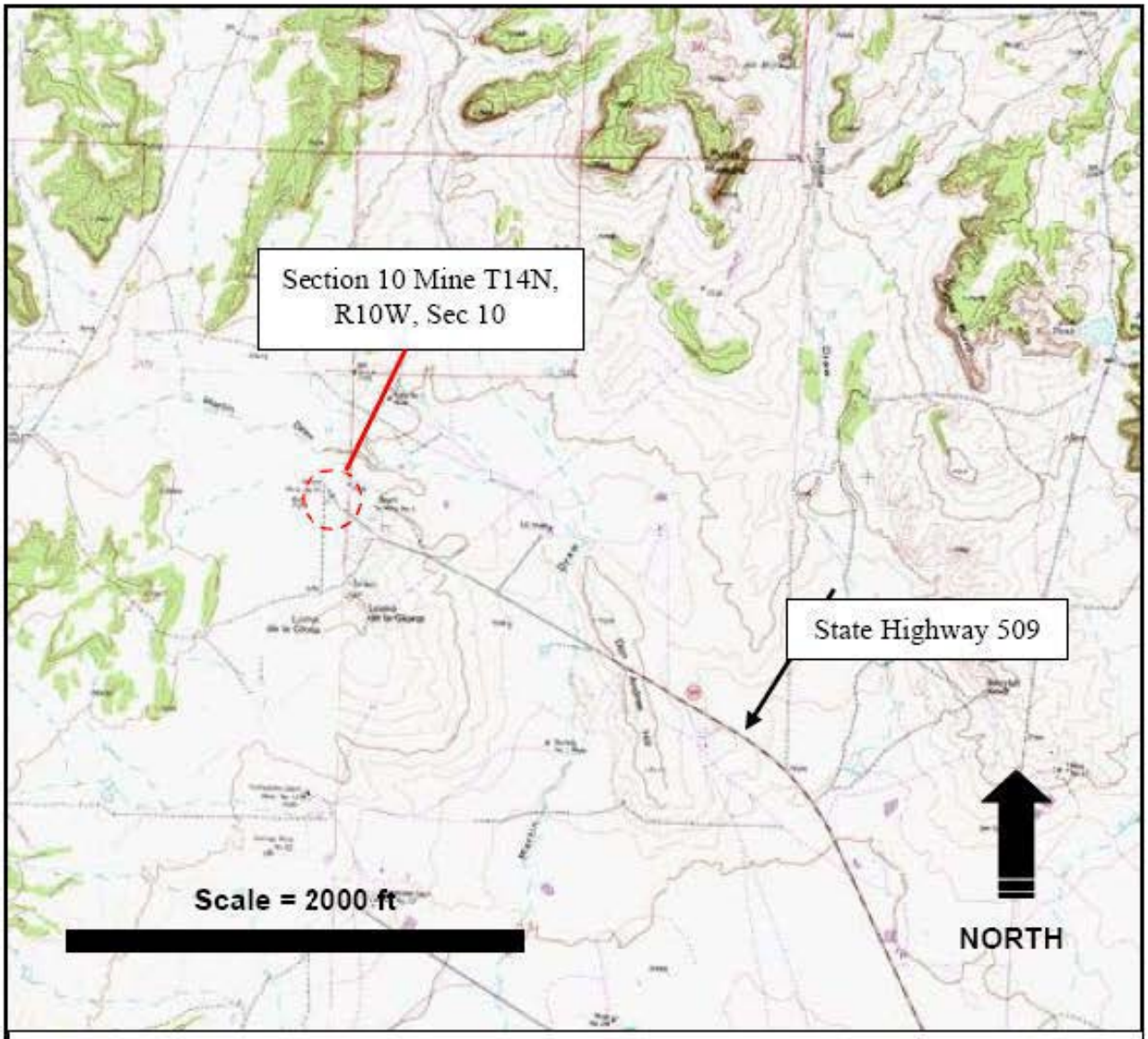


Figure 1. TopoQuest.com location map of the Section 10 Mine, Ambrosia Lake Subdistrict, Grants, NM. It is approximately 26 miles to Grants from the Site.

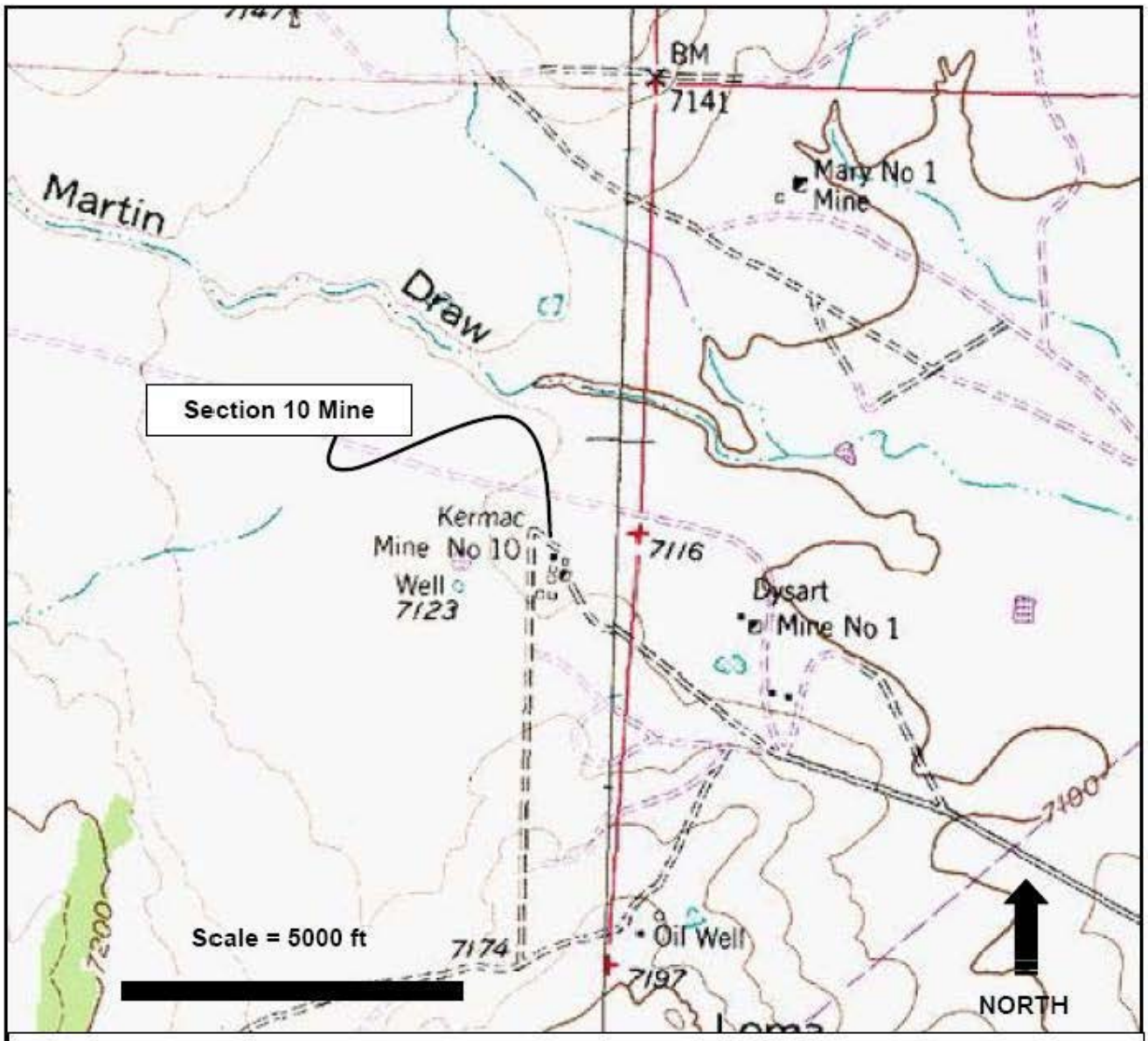


Figure 2. TopoQuest.com location map of the Section 10 Mine in USGS Goat Mountain 7.5 Minute Quadrangle, Ambrosia Lake Subdistrict, Grants, NM.

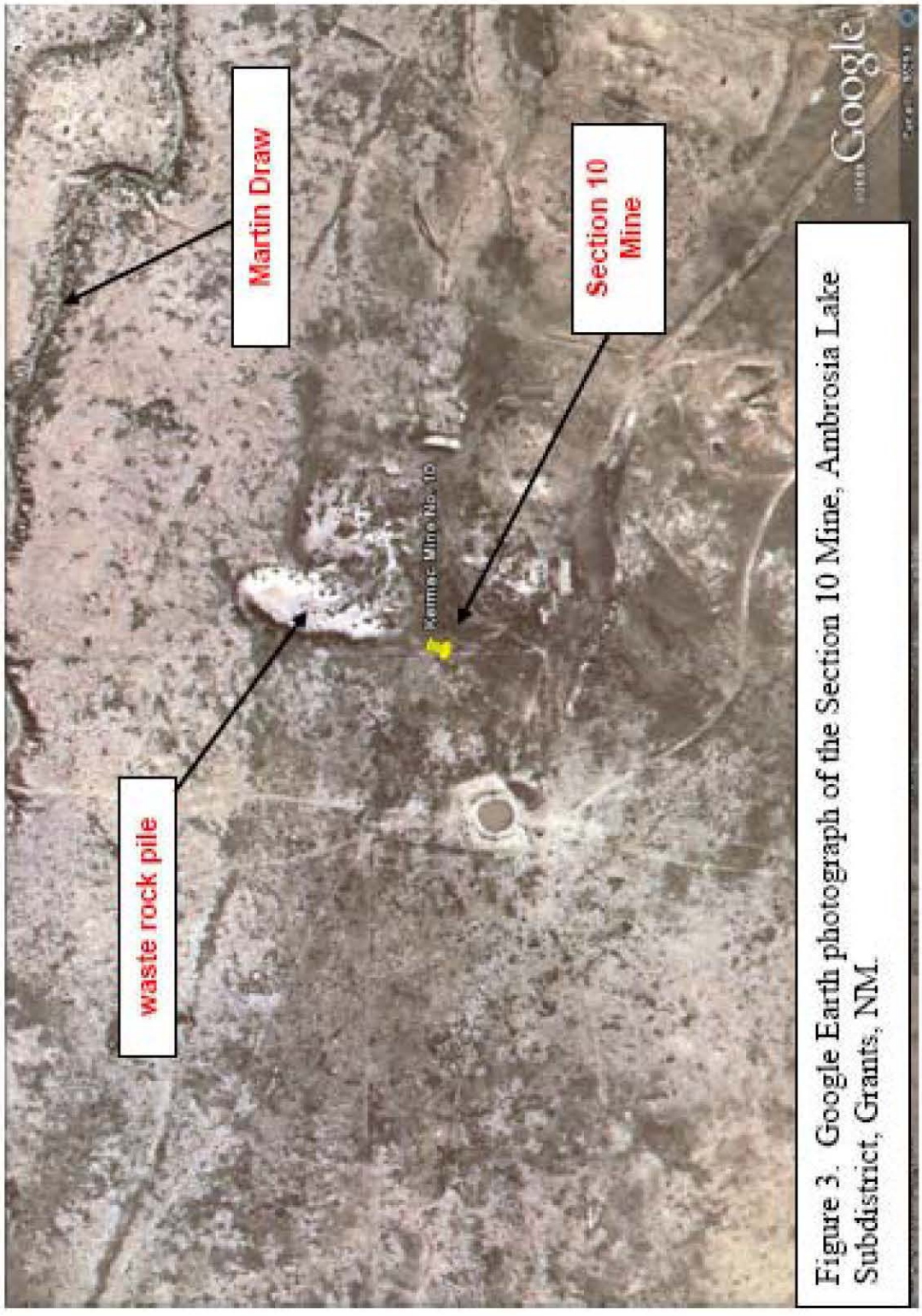
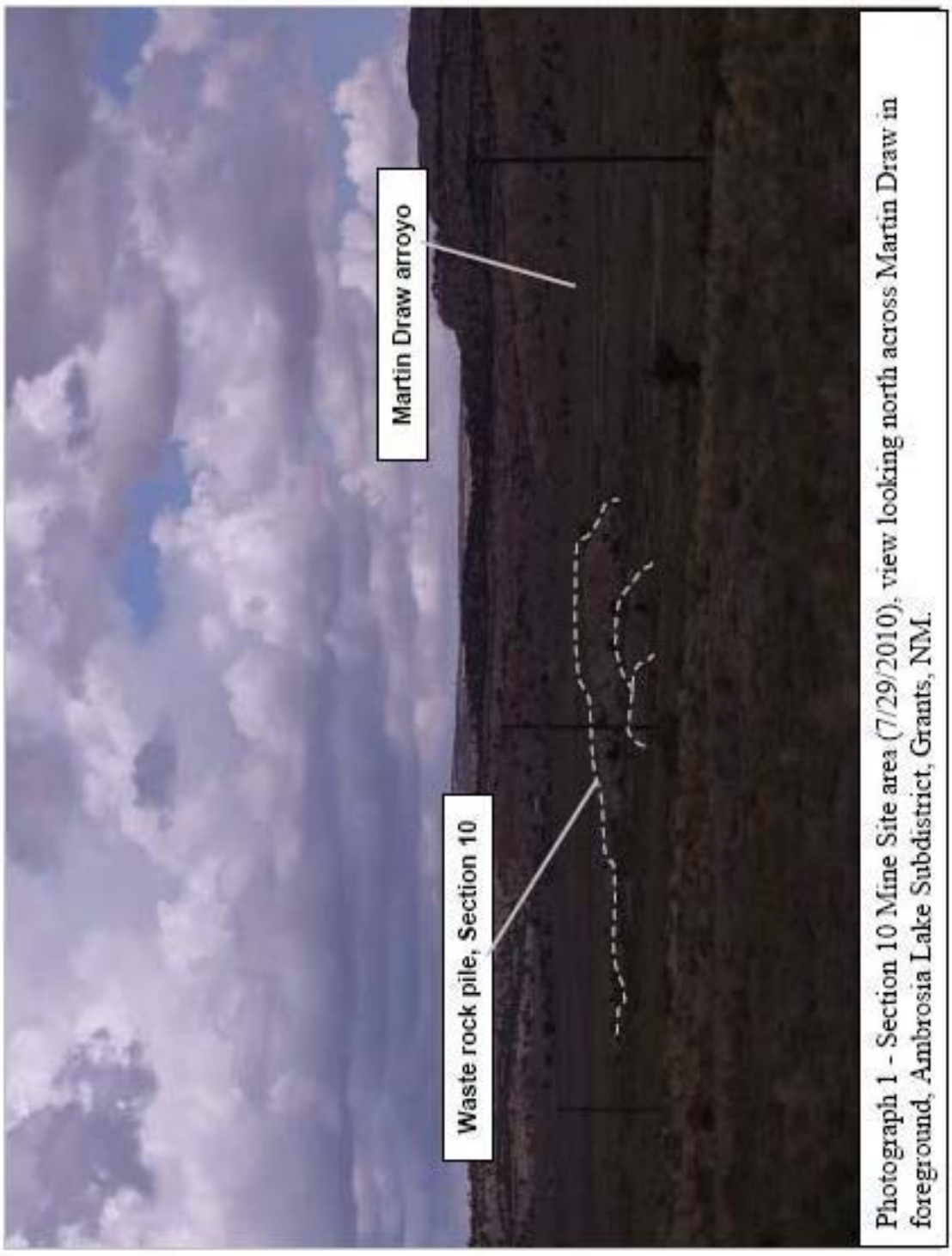


Figure 3. Google Earth photograph of the Section 10 Mine, Ambrosia Lake Subdistrict, Grants, NM.

Attachment B

Photograph Section 10 Mine Distal View
July 29, 2010



Photograph 1 - Section 10 Mine Site area (7/29/2010), view looking north across Martin Draw in foreground, Ambrosia Lake Subdistrict, Grants, NM.